

I am  
a math  
god (less)

5

3

1

Not.

Solve quadratics  
by  
taking square roots

Solve quadratics  
by  
factoring

Solve ... completing  
square

Solve ... quadratic  
formula

Solve quadratics  
graphically

$$\underline{3)} \quad x^2 - 5x = 14$$

$$x^2 - 5x - 14 = 0$$

$$(x - 7)(x + 2) = 0$$

## Zero Product Property

$$x-7=0 \quad \text{or} \quad x+2=0$$

$$x=7$$

$$x = -2$$

Everything = 0

	14
13	1.14
5	2.7
<del>5</del>	<del>1.14</del>

$$15) x^2 = 40$$

$$x = +\sqrt{40}, -\sqrt{40}$$

$$x \approx +6, -6$$

$$(x-2)^2 = 40$$

$$(x-2) = \begin{matrix} +\sqrt{40} \\ -\sqrt{40} \end{matrix}$$

$$x-2 = +\sqrt{40}$$

+2      +2

$$x = 2 + \sqrt{40}$$

take square roots of each side.

you want ~~(\*)~~  
 $x^2$  by itself  
 and no middle term

$$x-2 = -\sqrt{40}$$

$$x = 2 - \sqrt{40}$$

"2"  $\sqrt{2 \cdot 2 \cdot 2 \cdot 5}$

$$\begin{aligned} \sqrt{40} &= \sqrt{5} \cdot \sqrt{8} \\ &= \sqrt{4} \cdot \sqrt{10} \\ &= 2\sqrt{10} \end{aligned}$$

$$25) \quad x^2 - 2x = 12$$

$$(x-a)^2$$

$$(x-a)(x-a)$$

$$x^2 - 2ax + a^2 =$$

$$x^2 - 2x =$$

$$2a = 2$$

$$a = 1$$

$$x^2 - 2x + 1 = 12 + 1$$

$$(x-1)^2$$

$$x^2 - 2x + 1$$

$$(x-1)^2 = 13$$

$$x-1 = \pm \sqrt{13}$$

$$x = 1 + \sqrt{13}$$

$$1 - \sqrt{13}$$

Completing  
the  
square

2<sup>nd</sup>)  $x^2 - 4x + 1 = 0$

$a=1$   
 $b=-4$      $c=+1$

if  $ax^2 + bx + c = 0$   
 then

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(1)}}{2(1)}$$

$$x = \frac{+4 \pm \sqrt{16-4}}{2} = 2 \pm \frac{\sqrt{12}}{2} = 2 \pm \sqrt{3}$$

$$x = 2 + \sqrt{3}$$

$$2 - \sqrt{3}$$

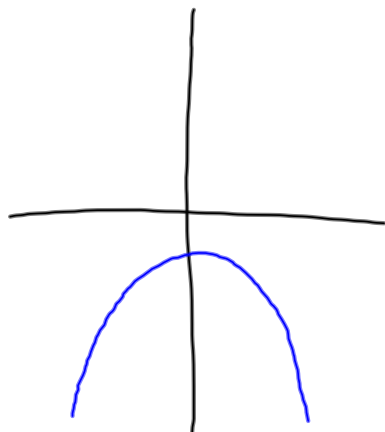
$$\sqrt{12} = \sqrt{4} \cdot \sqrt{3}$$

$$= 2\sqrt{3}$$

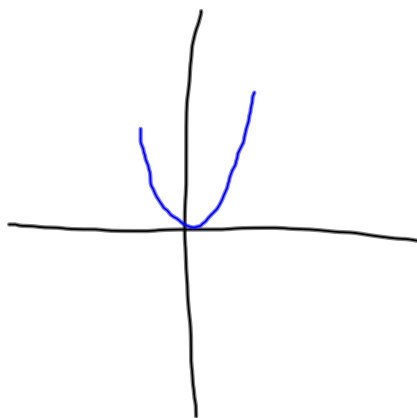
$$\frac{2\sqrt{3}}{2} = \sqrt{3}$$

(41)  $x^2 + 4x + 1$

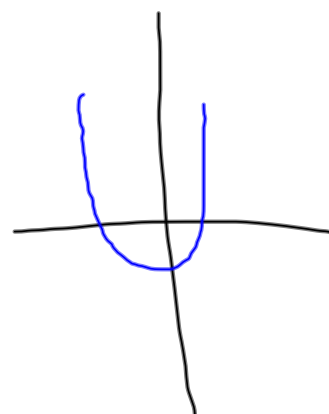
how many sol<sup>n</sup>s?  $\rightarrow$  discriminant =  $b^2 - 4ac$



0 solutions  
neg + so...  
discriminant  $< 0$



1 solution  
discriminant = 0  
$$\frac{-b \pm 0}{2a}$$
$$b^2 - 4ac = 0$$



2 solutions  
discriminant  $> 0$

$$4a) \quad 4x(x+1) = 1$$

$$4x^2 + 4x = 1$$

$$4x^2 + 4x - 1$$

$$(2x-1)(2x-1)$$

$$1x^2 + 4x - 4$$

$$(1x-2)(x-2)$$

1 std form  
 $2A \times 2B \times 2C$

how  
many  
diff forms?